UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
OREGON OPERATIONS OFFICE
811 S.W. 6th Avenue
Portland, Oregon 97204

August 17, 2007

Mr. Jim McKenna
Port of Portland & Co-Chairman, Lower Willamette Group
121 NW Everett
Portland, Oregon 97209

Mr. Robert Wyatt
Northwest Natural & Co-Chairman, Lower Willamette Group
220 Northwest Second Avenue
Portland, Oregon 97209

Re: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Lamprey Toxicity Test Field Sampling Plan and QAPP Phase 2 Addenda

Dear Messrs. Wyatt and McKenna:

As you are aware, EPA submitted comments on the Round 3 Lamprey Ammocoete Toxicity Testing Field Sampling Plan Addendum: Phase 2 Lamprey Ammocoete Collection and Testing (Lamprey Toxicity Testing FSP) on July 20, 2007. The Lower Willamette Group (LWG) submitted a response to these comments on August 10, 2007. EPA has reviewed the response to comments and finds the proposed changes to the Lamprey Toxicity Testing FSP generally acceptable. As a result, EPA authorizes the LWG to begin the collection of lamprey ammocoetes as soon as practicable. EPA understands that the collection is scheduled to begin on August 27, 2007 contingent on obtaining a scientific take permit from Oregon Fish and Wildlife (ODFW). As stated in EPA's July 20, 2007 comments, successful completion of the Phase 2 Lamprey Toxicity Testing will require close coordination with EPA both during ammocoete collection regarding the size range of ammocoetes obtained in the field and during the laboratory toxicity testing regarding the selection of the nominal text exposures concentrations for each test chemical.

Although EPA generally finds the proposed response to comments acceptable, EPA requests the following modifications and/or clarifications:

General Comment: As a minor point of clarification, EPA recognizes that Northwestern Aquatic Sciences (NAS) is only using one diluter for the lamprey studies, not multiple diluters as implied in the general comment.

FSP Comment 4: Note that the first EPA visit to NAS occurred on August 9, 2007, at which time EPA observed that both the diluter and ammocoete holding facilities are acceptable. EPA believes that lamprey toxicity testing can commence once final calibration of the organic chemical toxicant delivery system is completed. The toxicant delivery system itself is a standard design, and EPA anticipates no difficulties with the system once calibrated. At the request of NAS, EPA and NAS staff reviewed the rangefinding test results and discussed nominal dose spacing for copper, diazinon, pentachlorophenol, aniline and lindane. EPA and NAS are in agreement on the approach to be used to define the nominal doses for the definitive tests. EPA and NAS are also in agreement on an approach to be used to assign individual ammocoetes to exposure chambers during the toxicity tests.

FSP Comment 5: EPA agrees that test acceptability criteria for control survival is a minimum 90% survival in the pooled control exposure chambers, not a minimum 90% survival in each individual control exposure chamber.

FSP Comment 7: EPA understands that the laboratory selected to perform the toxicity testing (Northwestern Aquatic Sciences, Inc. – NAS) does not have the analytical equipment necessary to perform an in-house copper analysis. However, EPA also understands that copper samples will be sent to an outside laboratory and that this information will be available to help verify that the definitive toxicity test for copper was run correctly. EPA reiterates that chemical analyses of toxicants during the toxicity tests is solely for the purpose of ensuring the delivered test concentrations are close to nominal values, and will not be used as the definitive measures of test concentrations.

FSP Comment 8: While the proposed response is acceptable, please clarify that if field measurements of ammocoete length are too difficult or time consuming to perform, the MS222 will be used only on a subset of ammocoete samples to allow field personnel to visually estimate ammocoete length in the field without application of MS222. MS222 will not be used on all 3000 ammocoetes collected for transport to NAS.

FSP Comment 11: EPA's original comment regarding the maximum acceptable temperature change rate included a typographical error. The maximum acceptable temperature change rate is 1° C per *day* not 1° C per *hour*. As a result, EPA does not agree with the proposed temperature change rate of 3° C per 12 hours. Please specify a maximum acceptable temperature change rate of 1° C per day.

FSP Comment 15: During the August 9, 2007 EPA site visit to NAS, ammocoete handling procedures were discussed. EPA concurs with the LWG response to our comment regarding ammocoete handling and removal from sediment.

FSP Comment 18: During the August 9, 2007 EPA site visit to NAS, it was agreed that water samples for both definitive toxicant analysis and monitoring during the tests themselves could be removed from the flow splitting chambers, as an alternative to

obtaining the water samples from the test aquaria. Either method of obtaining water samples is acceptable to EPA.

FSP Comment 20: See EPA response to FSP Comment 5. EPA concurs with the LWG response to our FSP Comment 20.

FSP Comment 22: During the EPA August 9, 2007 visit to NAS, discussions were held regarding calculation of the nominal test concentrations for the definitive tests. As a result of those discussions, EPA believes the approach agreed to for calculation of nominal concentrations will result in at least one concentration with no response, one concentration with partial mortality, and one concentration with complete mortality. This assumes that the results of the rangefinding tests accurately represent the response of the ammocoetes to test chemicals during the definitive tests. Based on the EPA – NAS discussions, EPA now concurs with the LWG response to FSP Comment 22.

FSP Comment 25: Based on discussions with NAS staff during EPA's August 9, 2007 visit to the NAS laboratory, it is our understanding that both the rangefinding and definitive naphthalene toxicity tests will be performed under flow through conditions. This is acceptable to EPA. EPA should be notified by LWG if this currently intended study approach for naphthalene will be changed prior to test initiation. EPA acknowledges that the geometric progression of the toxicant dilutions during the definitive tests (and the naphthalene rangefinding test) will differ from the dilution progression of the rangefinding tests. These differences are by design, follow standard toxicity testing protocols, and are acceptable to EPA.

FSP Comment 26: EPA is aware of lethal body burden literature for all six test chemicals, for both fish and invertebrates. An increasing amount of literature indicates that the order of sensitivity of species exposed to waterborne chemicals is not the same as the order of species sensitivity when sensitivity is expressed on a tissue residue basis. EPA continues to believe that residue analysis of ammocoetes at the end of the toxicity studies is warranted and will provide useful ecological risk assessment information for interpretation of residues in the field collected ammocoetes.

QAPP Comment 1: EPA wishes to reiterate that an objective of these tests is to obtain LC_{50} data for lamprey ammocoetes. The tests are not designed as behavioral tests, nor is it intended by EPA that NAS quantitatively calculate EC_{50} values for any observed behavioral changes in the ammocoetes. The request to note any observed behavioral changes is merely a reiteration of good laboratory practice during toxicity test performance, where any unusual or abnormal observations should be noted on laboratory bench sheets.

QAPP Comment 2: During the EPA August 9, 2007 visit to the NAS laboratory, we reviewed NAS calibration data for flows to individual aquaria, and concluded that NAS has documented consistent and acceptable flows of water and toxicant to the test aquaria.

QAPP Comment 5: During the EPA August 9, 2007 visit to the NAS laboratory, we observed the column containing the glass beads that will be used as part of the toxicant delivery system of the diluter. We found the column to be a standard toxicant delivery system and acceptable for use in the lamprey toxicity tests once the toxicant delivery rate from the column has been calibrated.

Please have a final Lamprey Toxicity Testing FSP prepared and submitted to EPA that incorporates the above clarifications within 30 days following the date of this letter. If you have any questions, please contact Chip Humphrey at (503) 326-2678 or Eric Blischke (503) 326-4006. All legal inquiries should be directed to Lori Cora at (206) 553-1115.

Sincerely,

Chip Humphrey
Eric Blischke
Remedial Project Managers

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